

of our Red-headed Woodpecker. The Mearns's Gilded Flicker looked and acted much like our common Northern Flicker, but that the red nuchal crescent was lacking and the malar stripe of the male was red, as in the Red-shafted Flicker, instead of black. Both of these woodpeckers were especially common about the Carnegie Desert Laboratory in April.

Two small birds of prey profit by the numerous woodpecker excavations in the giant cactus, in that these supply them with nesting sites. These are the Elf Owl (*Micropallas whitneyi*) and the Desert Sparrow Hawk (*Cerchneis sparverius phalaena*). We have no real idea how common this tiny owl may be in the saguaros, but on one occasion we found one sitting in the opening of its burrow, calmly blinking down at us, and allowing itself not only to be photographed at very short range with a small pocket camera, but afterward to be dragged out of its retreat. The Desert Sparrow Hawk, is certainly *very* abundant everywhere. A pair of them visited the radio poles on our house on three occasions during November (18th, 21st and 25th), thus emulating the White-rumped Shrikes. In the spring, during April, they were easily the most numerous bird along the roadsides and among the giant cacti, where they nested. Aside from the Desert Sparrow Hawk, the bird of prey most in evidence was the Turkey Vulture (*Cathartes aura septentrionalis*), which during the late winter and spring was quite plentiful. On one day we saw over a dozen of them. The Marsh Hawk (*Circus hudsonius*) was also seen in small numbers in April.

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ARE BIRDS DECREASING IN NUMBERS?

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In replying to a query regarding the decrease of birds in recent years a careful observer would be quite apt to say that many species are decreasing in numbers, while a few are increasing. Such would be my answer, based on memory impressions, as well as on daily written records. Within the past three years friends have signified their recognition of a keenly felt loss of certain birds, formerly common or abundant, speaking somewhat in this wise: "We seem to have lost our Bobolinks. In this entire summer I have seen a Bobolink only two or three times." While another asks, "Tell us what has become of the Bobolinks, Kingbirds, and Bluebirds? We used to see many of them by the roadside, but now they are seldom met." Such

remarks have been made by elderly men, living in the counties of Winneshiek, Allamakee, and Clayton, which occupy the northeastern corner of Iowa. They are men who have known the fields and highways of the region for seventy years or thereabout. One object of this paper is to substantiate these impressions with figures taken from written records, kept daily, based on intensive observations, covering a score of years, and made on the same acres, whose natural conditions have changed very little in that period.

During the twenty years under consideration the changes in natural conditions, which have materially affected our bird population, pale before the magnitude of the changes that preceded them. Of these it may be permitted to speak briefly. To Farmersburg Township, Clayton County, Iowa, my parents came upward of eighty-two years ago, in May of 1845. Three, possibly four, homes preceded theirs, but these were built in the shelter of the woods, whereas they located on the treeless, trackless prairie wilderness, whose wide expanse of wild grass was unbroken by any object. The memories of their older children reach back seventy-five years, but mine for only seventy years or a trifle less, when many changes already had occurred. The Wild Turkey, so abundant on the wooded banks of rivers, had been exterminated before that day. Prairie Chickens were still numerous, as were some other ground nesting species. The hosts of Passenger Pigeons still passed in migration, while as late as 1865 the honking of wild geese, flying northward, caused sleepless nights for a young man, recently arrived from the East. To have kept for sixty years a record of the coming and rate of increase of bird species would have been a most desirable achievement. Instead of that I was sent from home to school in 1869, and for the next twenty-six years was absent except for brief intervals. For a few years after residence in the family home was resumed other duties claimed my attention.

The spot where my bird studies have been conducted became the family home in 1866. It was situated on the southern edge of a small, frontier village, that the coming railroads did not approach, consequently it shared the fate of many another hamlet similarly situated. Our home dooryard contains about an acre of land. The changes it has undergone in sixty-one years are characteristic of many prairie localities and have close connection with the bird species displaced and those attracted to it. The first change on grass covered prairie soil, which held no attraction except for ground nesting birds, was the building of house and barn. The barn has provided nest

sites for seven species of birds. The next change came with the growth of trees, shrubbery, and berry bushes; the last, important change has been due to lack of pruning and to riotous thickets for the planting of which the birds brought the seeds. The elderberry is the most attractive of these and its bushels of berries find favor in the sight of fall migrants. Drawn by bird planted bushes there have come within the past half dozen years to nest the Traill's Flycatcher, Indigo Bunting, Cedar Waxwing and Yellow Warbler. Of the forty species of birds, known to have nested on our premises within twenty-two years, thirty-six of them have nested within the limits of the dooryard. Probably thirteen instead of forty would have numbered the breeding species had the land remained in its original wild state.

The duration of the period whose figures are here discussed is from 1907 to 1927, inclusive, which makes twenty-one years, but I was absent the whole of 1914 to the middle of September, therefore no account is made of that year. There have been other long absences, but these occurred late in the fall months, mainly after migration had ended, or in the winter. There have been short breaks in the summer records, which have not seriously affected the general averages.

A daily record of the birds seen or heard has been kept throughout the year. From about November 12 to nearly the same date in March rarely are other than resident birds to be seen. These are seen from the windows. For the remaining 245 days of the year to window observations is added the list of birds found on a walk over our own acres and along the highway for a distance of a half mile or more, occasionally less. On this walk approximately a hundred acres can be viewed with binoculars for the identification of the larger species and the smaller ones near at hand. The time given to this counting of species would average two hours a day for the greater part of eight months. Shorter hours are offset by the time given on days, when nearly the entire time is devoted to watching the migrating hosts. Since 1905 there have been identified on or from our land 162 species of birds. The largest number in one day was 52. Out of this total of 162 species the annual lists show that from 92 to 109 species are recognized yearly. The records for thirteen years of nearly unbroken observations give an annual average of 103 species, while the average for the past three years is 94 species only.

Even more deplorable than this decrease of species shown by the annual totals are the showings made by the median number of bird species daily present in the three months of June, July, and August.

when the lists consist chiefly of breeding birds. The daily average for these three months in the four year periods 1909 to 1912, and 1917 to 1920 was 21 for each, but for the four years 1924 to 1927 inclusive, it was 17. In 1921 for June and July only it was 25 species; for the same months in 1927 the daily average shrank to 16 species. It should be noted here that the decrease of nine species in the breeding months names the same number shown in annual totals, when 94 species instead of 103 is the average. Any bird student, keeping records of this sort, ought to be able to answer, "It is death," to the question, "What has happened to our Kingbirds, Bobolinks, and Bluebirds?" and confidently add that equally with these have the Chipping Sparrows suffered; that beyond our ken have passed a large proportion of the Bob-whites, Prairie Horned Larks, Baltimore Orioles, Vesper Sparrows, Cliff Swallows, Barn Swallows, Warbling Vireos, Maryland Yellow-throats, and Short-billed Marsh Wrens, which until very recent years helped to make longer these daily lists. All are not yet extinct. To restore *some of them* to their former numbers is still possible, if mankind is willing and will act.

The next step will be to outline the status of certain species of the listed birds. In the fall of 1907 I built a rude blind for shelter, while observing rails and other marsh birds in a wet ravine about a hundred yards from our house. For a few years there had been a radical change in the occupant uses to which this bit of marshy land was put, also there had been a succession of wet seasons. Due to these two causes the rails flourished in that spot. King Rails were seen on a few days, Virginia Rails were listed on fifty days of 1907 and the following year, and the Sora Rail on ninety-five days. In the spring of 1909 the King and the Virginia Rails were seen only a few times, but the Sora stayed and nested. It is believed that at least two pairs had nests. Our state geologists tell us that the water level in Iowa has fallen fifteen feet in the past fifty years. Springs have dried up that formerly had fine flows of water. This happened to the marshy ravine that was the haunts of the rails. In succeeding years a few of them were seen, but in the past six years only the Sora has been listed, and it on only two occasions.

Numerically the Solitary Sandpiper does not seem to have suffered. Far different has been the fate of Wilson's Snipe. Formerly in migration it was seen in flocks, numbering from six to fifteen birds, on a dozen to twenty days of the year. Gradually its numbers fell to one or two individuals, until in the last two years not one was seen. The Upland Plover, formerly an abundant breeding species, is with

us no more. A pair here in the summer of 1917 probably was nesting. Owing to crop rotations the Killdeer must change its location yearly, making it difficult to estimate its numbers, however, they do not seem to be greatly reduced in twenty years. In this neighborhood a few Prairie Chickens still survive, but now so far from our home that no longer can their booming be heard in spring. It is three years since the last one was listed.

Fortunately, most fortunately, our county's population is largely rural. Its villages are few and small; its largest one numbering less than 1700 inhabitants. This means that the county is quite free from that urban creature, who calls himself "a sportsman," whose pleasure it is to go forth with a gun and shoot such beautiful, beneficent creatures as the Bob-white. Twenty years ago it was a common bird, heard calling daily in summer, sometimes three or four cocks calling at once. For ten years its numbers held fairly well, then came winters of severe cold and drifting snow, after which Bob-white became very scarce. In the summer of 1918 it was heard only twice. Since then a slight increase in its numbers has been detected.

The so-called sportsman is absent, and I have yet to hear of farmers in this neighborhood shooting Bob-whites, but I have seen some of them show deep concern over injuries done to nesting birds by their plows and mowing machines. It is these implements that have worked destruction; these and the life-sustaining cow. If long ago everyone had become a vegetarian, leaving no one to demand veal, beef, pork, and mutton; if chemists had placed on the market synthetic butter, milk, cheese, and ice cream the ground nesting birds would not have fared so badly.

The pasturing herds have been inimical to our wild flowers as well as to our birds. Long, long ago there perished a flower of transcendent loveliness; it was gone before we learned so much as its name. But the beauty of other flowers still glowed on all the hill-tops. These in turn vanished. In the tame grass now covering the hillsides may be seen numerous flowering plants, but the plants are ragweed, thistles, and dock. Last year the man, employed to cut roadside weeds, slashed down every evening primrose, jewel-weed, and aster, and left standing every burdock, thistle, and nettle, that I passed on my daily walk.

The early settlers of this region planted deciduous trees about their homes. About forty years ago the general practice of planting evergreen trees for wind-breaks began. Their growth has marked a great increase among the Bronzed Grackles. Before that the King-

birds were numerous. They seem to hold well their own against all birds except the grackle. It and the rare activities of some keeper of bees are the only known causes for the great decrease of the Kingbirds.

Along with the Kingbirds some years ago the Bobolinks held a constant place on the daily bird lists. Both species were marked present for seven days in the week and thirty days in the month until their summer season was over. Fifteen years ago while visiting a cousin on his ranch in California he remarked to me, "I don't know what I'd give to hear again the Bobolinks singing on the old farm in Iowa." Some of his friends have said that his income is a million dollars a year. This he declares is exaggeration. Whatever the figure may be, it has not been lack of the price of railroad fare that hindered his return in the months when the Bobolinks sing. Unless he comes quickly all the millions of the entire globe can not procure for him in this locality one hour of the music of the Bobolink. Even now the absence of its song makes the world seem dreary and when a song is heard the occasion is marked for special recognition. In contrast with former summers, when a grand chorus of song was heard each day, in 1927 I heard a Bobolink sing on four days only. In August the count of individuals in flocks, moving southward, proved that some other localities are more fortunate. To the rice growers on the Atlantic sea-board must be referred those people asking, "What has become of our Bobolinks?"

In 1907 the Red-winged Blackbird was the most abundant breeding species in our neighborhood. Seven of its nests were located on our premises with many more nearby. In the summer just past not seven pairs of these birds were seen on all the acres under my observations. Many dry summers in which farmers could mow the grass on low ground seem to explain the loss among redwings. A similar decline has attended the Meadowlarks. Here both the eastern form and its western cousin are breeding species. Formerly both the Red-winged Blackbird and the Meadowlark could be listed daily, now there is many a break in their records.

For the marked falling off in the numbers of the Baltimore Oriole thanks are due to the Screech Owl. In 1924 a pair nested in one of our maple trees and came daily to the feeding-stick for food. A most enjoyable sight and a brilliant combination of colors were afforded by a Red-headed Woodpecker together with both of the Orioles feeding on the stick at the same time. Later, after the mother Oriole was taken the father strove bravely to feed the three nestlings, but all fell victims to the foe.

Twenty-two of our native sparrow species have visited our home place. While speaking of sparrows let it be said that the English Sparrow has never been listed here, never counted among the birds, it is accounted a pest only, and is with us always. The numbers of our native sparrows *seen* in each migration season depends very much on whether the brook beds are dry or hold water and on what crops the three years crop rotation, practiced by my farmer neighbors, has brought to the brooksides. Enough of these cycles have passed to confirm the opinion that the hosts of visiting sparrows are less than formerly. Among the breeding Fringillidae the status of the Goldfinch alone remains unchanged. The Vesper Sparrow has appreciably decreased. The Dickcissel is always a variable summer resident, sometimes here, sometimes absent. Year after year the spacing of nesting Song Sparrows was the same; six or seven locations were claimed. In 1927 only three of these were occupied. Formerly the Chipping Sparrow was one of the birds to be found constantly on the daily lists. It has not been learned if a foot disease, afflicting the species elsewhere, does so here. But it is known that the increase of its destructive arch-enemies, the Bronzed Grackle and the House Wren, is sufficient to explain its present scarcity.

Any one who has been called upon to write the obituary of a dear, young friend, a friend beautiful and graceful of form, whose coming was like the breath of spring, whose beneficent life blessed mankind and harmed him not, then that person knows full well the emotions felt by any of us when speaking of the swallows—the swallows that were the chief bird joys of our childhood, the Cliff Swallows that built their homes three deep under the eaves of the barns, and the Barn Swallows that built numerous nests within. Hundreds of swallows skimmed the air, where scarcely one can now be found. Last spring, like a token out of the blue, came a flock of Cliff Swallows to the home of a near neighbor. They built twenty-seven nests, almost all of which English Sparrows occupied at once.

In connection with other bird losses it seems fitting to recall the great catastrophe that befell the warblers in May of 1907. Not only warblers, but also vireos, and some of the flycatchers died from lack of food, accompanied by freezing weather. A large portion of our warblers' range was not affected. The area on which warblers suffered death is estimated as upward of one hundred million of acres. In our dooryard of an acre sixteen dead warblers were found. Using this as a basis for computation it has been said that millions of them perished. In the *Auk* for January, 1908, are two articles descriptive

of the calamity, and a short account of it appeared in *Bird-Lore* (September-October, 1915).

It was a bereavement for bird students to have the beautiful family of warblers come so near extinction. If one bewailed the loss, he was sure to be told, "Mourn not! Comfort yourself with the thought of the short time taken by the Bluebirds to replenish their numbers, when nearly annihilated!" Naturally one would deem twenty years sufficient for warbler restoration. In spring migrations before 1907 no attempts were made to count the individuals of the great swarms of warblers that halted in search for food. For sake of later comparisons this was most unfortunate. However, it was estimated that fully one hundred warblers have visited our trees on some days. Over against this reasonable estimate are placed the recorded figures for twenty years, taken on the very same grounds, which were fully as attractive for warblers as they were prior to 1907. It was believed that warblers were not increasing, when a chart of the figures was made it showed that the family was decreasing. Both spring and fall migrations are counted. Only in 1915 did the warbler numbers exceed the beggarly few which came in 1908, directly following the year of the great death. In the entire spring of 1918 the total of eight species, containing twenty-three individuals, was no more than could have been found in one hour of the old days.

Facts so astonishing, so contrary to expectations and experience, must have an explanation. Beyond doubt the facts known to be true on one acre are true of the millions of acres north of it. After the House Wrens became established here Maryland Yellow-throats were driven off. Not a warbler's nest had successful outcome until last summer, when the wrens having been reduced to a minimum and all Cowbird eggs having been removed from the nest a Yellow Warbler brought off a brood.

The Bluebird is one of the greatest sufferers from the evil nature of the House Wren. Not until about ten years ago were the effects from the intensive breeding of these wrens felt here. Once more the proof-telling figures show much. My daily records show that in certain past years I enjoyed the presence of this beautiful bird for such annual totals as 126 days, 132 days, 136 days, and 149 days. During all of last year (1926) I saw the Bluebird on four days only, and this year on eleven days. What does this mean? Nothing less than that I am being wronged, defrauded, cheated out of my rights to the pursuit of happiness by the maintainers of wren boxes to the north of me.

Among the birds here whose numbers have not changed appreciably of late may be named the Chimney Swift, Phoebe, Blue Jay, Crow, Cowbird, Brown Thrasher, Robin and five species of woodpeckers. I know of no family of birds capable of affording spectators so much entertainment as can the woodpeckers. The Flicker especially deserves a volume for his history. Although a model of fatherhood he is mated to a fickle female, far too often ready to desert him, leaving her nestlings to starve, while she goes off with another male. His trials are enough without the addition of a foreign foe.

The latter part of 1913 and until mid-August of the next year I spent in the Old World, seeing a little of twenty countries. From the first of June onward my itinerary was planned for seeing birds.- The sight of a woodpecker was very rare, marking a red letter day on the bird lists, and there were but three of them. The first was in January, when a Golden-backed Woodpecker was seen in Delhi, India; the other two were in July in which a Lesser Spotted Woodpecker was seen in the environs of Honefos, Norway, and later a Green Woodpecker was seen in a public park of Stockholm, Sweden. This serious dearth of Old World woodpeckers lacked explanation until a few American ornithologists reported instances of Starlings driving Flickers from their holes and usurping the same. The unchecked spread of the Starling seems to repeat a tragedy, similar to the spreading of the English Sparrow with almost nothing being done to save our valuable native birds. Therefore it is gratifying to hear from one man in North America who is doing some of this protection. Mr. John B. Lewis of Lawrenceville, Virginia, has related his difficulties in protecting one Flicker's home. "In the last two years the Starlings have given me no little trouble. Last spring they would have taken possession of all the nest boxes and holes on the place, had I not made free use of a shot gun. More than twenty were killed in about two weeks, before they gave up and quit the premises. Seven were shot off one flicker house in three days."

In my restricted field of observation five bird species have been increasing. Three of them are among the most destructive and undesirable of our bird citizens. Favoring the increase of Screech Owls has been the advantages offered by many woodpecker holes and untenanted buildings, together with immunity from the shot gun. A close study of their habits brings the conclusion that the farther away are all Screech Owls the better it is for all desirable birds.

The coming in abundance of the Bronzed Grackle has been mentioned and the part it plays in the reduction of Kingbirds and Chipping Sparrows. The farmers like to see the grackle following the

plow, picking up the larvae of the May beetle, known as the white grub worm, which destroys their corn. But its good deeds do not seem to counter-balance its harm to other birds.

Among the many melancholy events in a bird history covering a score of years one delightful occurrence stands in bright relief. It was the coming of the Cardinal on its northward advance. Its first appearance in this area was in 1909, and its second visit came six years later. Since 1918 it has been a regular winter boarder, showing in spring a desire to stay for nesting, but is driven off by the Brown Thrashers.

Not so welcome has been the increase of Catbirds. They were plentiful enough before their ranks were augmented. Desirable bushes in which to build nests and an abundant food supply have attracted them. Their gluttony for berries surpasses that of other birds. However great the supply of berries, none is left for us except those under covers, protecting them from Catbirds, Brown Thrashers and Robins.

Here House Wrens have increased immensely in twenty years. Nothing less could be expected, when across the entire continent school children are urged to build and put in place boxes for wrens. A fad or fashion has been started more deadly to many birds than the fashion of wearing bird feathers on women's hats. The disaster following that fashion was not so much the fault of ignorant women as it was of market hunters who killed birds for gain. The disaster following the wren house craze is not the fault of innocent children, but is the criminal fault of those fostering for gain the business of wren house making. They include various classes of teachers and leaders who are selling the birthright lives of many kinds of birds for their own mess of pottage. They have heard the truthful warnings of many who *know* that in summer the House Wren is a constant menace to several species of birds — a menace that is spelling destruction to vanishing birds, greatly needing protection.

Some of us in a few short years have seen great changes in natural surroundings. Having seen the vanishing of some birds from a locality, and other birds take their places; having seen how easily the English Sparrow displaced the beautiful swallows, we can believe that quite as readily the Starling can displace the woodpeckers; moreover, on a small area we have seen the House Wren completely displace warblers and the Bluebird. Those who can lift their eyes to hills once beautiful with wild flowers and now see there naught but ugly weeds realize how easily in nature work the laws of displacement, and how easily good birds are displaced by bad ones.

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